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Metropolitan Life Insurance Co.

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## HOMICIDE DEATHRATES IN THE INDUSTRIAL POPULATIONS OF AMERICAN STATES AND CANADIAN PROVINCES

A comparison of the homicide deathrate of the United States with those of England and Wales and of Canada is very unfavorable to this country. We have nearly 12 times as many homicides per 1,000 of population as they have in England and about 5½ times as many as in Canada. This comparison, it is true, includes our colored population, among whom the homicide rate is very much higher than that for the whites. But even if we restrict the comparison to white persons, our rate still approximates seven times that for England and Wales.

In view of the seriousness of the homicide problem in this country much interest obviously attaches to the very latest data concerning homicides. Are conditions getting better or worse? What is the geographic distribution of homicides in America? What is the ratio of the death toll for males as compared to that for females?

Figures compiled by the Metropolitan Life Insurance Company for the year 1926, up to and including the week ended November 27th, indicate that the rate will be a little lower this year than in either 1925, 1924, or 1923. While this is encouraging, it must be remembered that these three years, together with 1917, showed the highest homicide mortality ever recorded among the industrial population. We cannot, therefore, take too much comfort from the slight betterment recorded so far this year. Year-to-year declines have been shown many times in the past, but they have proved to be only transitory, and were followed by considerable increases in the subsequent years. During the sixteen-year period, 1911 to 1926, the homicide rate for the Industrial population has shown a slightly upward tendency at the very same time that the

rate for suicides has been almost halved, and that for accidents reduced very materially.

In the table on page 3 the most outstanding item is the very high deathrate among the colored. In 1925 the deathrate for negroes in the industrial population was exactly nine times that for the whites. In certain states the divergence was much greater.

Among white policyholders the highest rate for 1925 (12.4 per 100,000) was recorded for the industrial populations of Arkansas cities. The next highest rate (11.1) was in Tennessee, followed by 10.5 in Florida, 10.0 in Alabama, 9.4 in Nebraska, and 8.4 in Oklahoma. The best homicide record in the white industrial population was observed for Maine, New Hampshire, Vermont, Delaware, Colorado, and Oregon. Not a single homicide was recorded among the white policyholders in any of these six states, despite the fact that 470,300 white persons were exposed to risk in these commonwealths. Other states in which the homicide deathrate for white persons was much below the average are Massachusetts, Rhode Island, Connecticut, Wisconsin, Minnesota, Iowa, District of Columbia and Utah. Four Canadian provinces, New Brunswick, Manitoba, Saskatchewan and Alberta, did not record a single homicide among their urban industrial population during 1925; in Quebec and Ontario the rate was negligible.

Considered by broad geographic regions the highest homicide deathrate in the white urban industrial population of the United States was 8.4 per 100,000 in the East South Central region. The next highest rate was 8.2 in the West South Central States, followed by 6.4 in the West North Central group. The lowest rate was 1.2 per 100,000 in the New England States; the next lowest was 2.6 in the Mountain States. Canada, with a rate of only 0.7 per 100,000, was lowest of all.

In the *colored* industrial population, the enormously high deathrate of 115.2 per 100,000 was recorded for Oklahoma. Other very high rates were 78.2 in Minnesota, 66.1 in Michigan, 59.9 in Nebraska, 56.0 in Missouri, 53.9 in Illinois, and 50.5 in Florida. Among the broad geographic regions, the West North Central States show the highest homicide rate (52.0 per 100,000) followed by 49.7 in the East North Central States and 45.2 in the West South Central group. The lowest deathrate for colored as well as white policyholders was recorded in New England.

Some idea of the gravity of the homicide problem among the entire colored population, as distinguished from the insured group,

may be obtained from the latest figures published by the U. S. Census Bureau, and relating to the year 1923. If the very high homicide rate of the colored (38.5 per 100,000) had prevailed

**Deathrates per 100,000 Persons Exposed. Homicides. By Geographic Division, State and Province. Metropolitan Life Insurance Company, Industrial Department, 1925 (Excluding Infants under One Year of Age.)**

| Geographic Division | Rates per 100,000 | |
|---|---|---|
| | White | Colored |
| Total Company | 3.6 | 34.1 |
| United States | 3.8 | 34.2 |
| New England | 1.2 | 9.1 |
| Maine | † | † |
| New Hampshire | † | † |
| Vermont | † | † |
| Massachusetts | 1.2 | 7.4 |
| Rhode Island | .5 | 19.0 |
| Connecticut | 2.3 | 6.2 |
| Middle Atlantic | 3.5 | 20.6 |
| New York | 3.9 | 21.3 |
| New Jersey | 3.2 | 9.5 |
| Pennsylvania | 3.0 | 25.1 |
| East North Central | 4.2 | 49.7 |
| Ohio | 3.6 | 43.8 |
| Indiana | 4.2 | 37.2 |
| Illinois | 5.6 | 53.9 |
| Michigan | 3.0 | 66.1 |
| Wisconsin | 2.3 | 28.8 |
| West North Central | 6.4 | 52.0 |
| Minnesota | 2.2 | 78.2 |
| Iowa | 1.0 | 34.6 |
| Missouri | 8.2 | 56.0 |
| Nebraska | 9.4 | 59.9 |
| Kansas | 7.4 | 39.6 |
| South Atlantic | 4.4 | 23.3 |
| Delaware | † | 4.5 |
| Maryland | 2.6 | 27.9 |
| District of Columbia | 1.0 | 16.2 |
| Virginia | 6.1 | 15.5 |
| West Virginia | 3.7 | 36.0 |
| North Carolina | 4.0 | 20.3 |
| South Carolina | 6.7 | 22.2 |
| South Atlantic (*Cont.*) | | |
| Georgia | 6.9 | 30.2 |
| Florida | 10.5 | 50.5 |
| East South Central | 8.4 | 38.2 |
| Kentucky | 5.6 | 30.6 |
| Tennessee | 11.1 | 46.5 |
| Alabama | 10.0 | 34.3 |
| Mississippi | 5.4 | † |
| West South Central | 8.2 | 45.2 |
| Arkansas | 12.4 | 41.5 |
| Louisiana | 6.8 | 38.1 |
| Oklahoma | 8.4 | 115.2 |
| Mountain | 2.6 | * |
| Montana | 6.4 | * |
| Idaho | 6.5 | † |
| Colorado | † | |
| Utah | 1.2 | † |
| Pacific | 4.3 | 25.5 |
| Washington | 3.9 | 57.0 |
| Oregon | † | * |
| California | 5.0 | 20.3 |
| Canada | .7 | 13.9 |
| Eastern Provinces | .7 | 16.2 |
| Nova Scotia | 2.4 | † |
| New Brunswick | † | † |
| Quebec | .5 | † |
| Ontario | .8 | * |
| Western Provinces | .7 | † |
| Manitoba | † | † |
| Saskatchewan | † | † |
| Alberta | † | † |
| British Columbia | 1.7 | † |

*Deathrate not calculated on account of small number of colored policyholders.
†No deaths.

among the whites there would have occurred among the latter nearly 34,000 deaths from homicide instead of less than 4,500.

All of the above data relate to the industrial population of the cities. The relative rank of the several states cannot be considered to reflect in every instance conditions prevailing in the general population of those states. This rank might be changed in many instances, especially for those states which have large rural populations.

The homicide rate for males among this insured group, in 1925 (11.7 per 100,000), was exactly three times that for females (3.9).

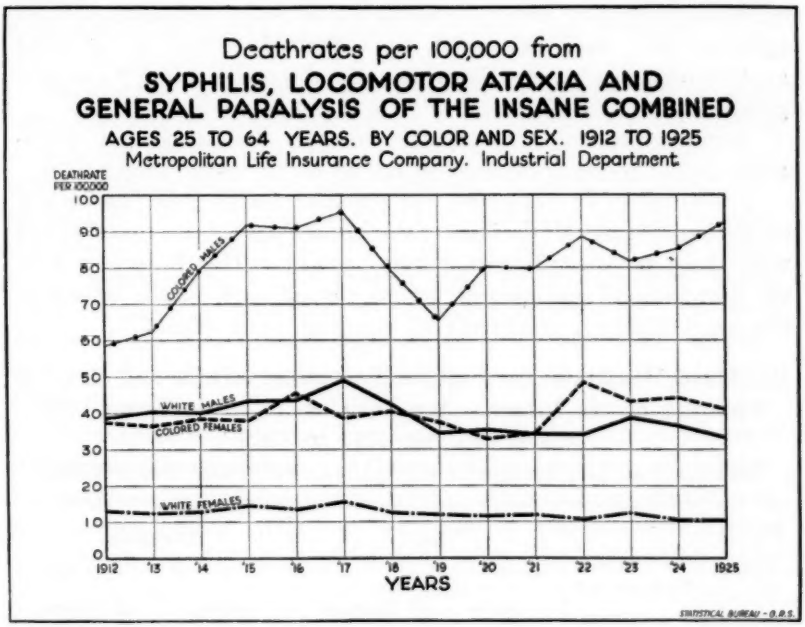
At all significant age groups homicide mortality runs higher among the general population than among Metropolitan Industrial policyholders.

## MONEY VALUE OF LIFE EXTENSION

At the Annual Meeting of the American Statistical Association, Drs. DUBLIN and LOTKA of this Company presented a paper on the Value of Life and of Life Extension, which forms a continuation of the studies of the value of a man published in earlier issues of the BULLETIN this year. The improvement in the expectation of life in recent decades has had a very decided effect on the value of a man. A duplicate computation, carried out as before, but on the basis of the 1901 life table instead of the 1924 table, has shown how important in increasing economic values the recent extension of life expectation has been. The value of a male, at birth, according to the 1924 life table, was found to be $9,333. Against this figure we can now put for comparison, according to the 1901 life table, the value of $7,553. There is thus a gain of $1,780 per male born, attributable to the increased expectation of life alone. At age 21, the value, according to the 1924 life table, was $30,818; according to the 1901 life table, $29,500, so that the gain here is $1,318. At later ages the gain is, naturally, less, for there are fewer years of gainful occupation remaining; so, for example, at age fifty the gain is only $274. We may also compute the total gain to those who benefit from the earnings of all the persons saved to longer life. For males alone, this figure amounts to $2,300,000,000 every year. Suitable data for computing a figure for females are lacking, but a conservative estimate would put the total gain, for both sexes, at about three and one-half billion dollars per annum. This is the economic value of the increased earning power of our population which has resulted from the increase in the expectation of life in this generation.

## TREND OF THE SYPHILIS DEATHRATE, 1912 TO 1925

Between 1912 and 1917 the mortality from syphilis among the white male Industrial policyholders of the Metropolitan Life Insurance Company showed a decided upward trend, reaching its peak in the first "war year," 1917. This 1917 maximum was followed by sharp drops in 1918 and 1919, after which there was no decided change up to and including 1922. In 1923 another rather pronounced increase was experienced, followed again by declines in 1924 and 1925. The same general tendency was observed in the


Deathrates per 100,000 from
SYPHILIS, LOCOMOTOR ATAXIA AND GENERAL PARALYSIS OF THE INSANE COMBINED
AGES 25 TO 64 YEARS. BY COLOR AND SEX. 1912 TO 1925
Metropolitan Life Insurance Company. Industrial Department
DEATHRATE PER 100,000
COLORED MALES
WHITE MALES
COLORED FEMALES
WHITE FEMALES
YEARS
STATISTICAL BUREAU - U.B.S.

deathrate for white females during this fourteen-year period, with the deathrate for each year running approximately one-third that for the males.

Among colored males, the picture is a very different one. The upward trend between 1912 and the peak year, 1917, was much more pronounced than for the whites; and although the same declining tendency was shown for 1918 and 1919, the upward trend in years subsequent to 1919 has been more marked, with the deathrate of 1925 almost as high as in the peak year, 1917. The highest rate among colored females was that for a post-war year, 1922, and although there has been a declining trend since that year, the most

recent figures are still well above those of ten years and more before.

The improvement in the syphilis deathrate in the first few years following 1917 was believed to be traceable to the movement to control venereal disease, which was much intensified during the war years; and which was stressed particularly among the soldiers and the civilian populations near cantonment camps. Since the war, state and municipal Health Departments, the United States Public Health Service and the American Social Hygiene Association have cooperated in putting before the public the best measures for prevention and treatment of venereal disease. The lesson that the accompanying chart and table teach is that while the efforts of these agencies have been successful, in a limited degree, in checking syphilis mortality among the whites, the disease is actually taking a greater toll of negro lives today than it did in pre-war years.

For the present, at least, the venereal disease control movement should concentrate more attention on the negro population.

For purposes of this study, the reported deaths from "locomotor ataxia" and "general paralysis of the insane" have been consolidated with those reported definitely from *syphilis*. This is in line with the best medical opinion that practically all such deaths belong in the same category, practically all being of luetic origin.

**Combined Deathrates for Syphilis, Locomotor Ataxia and General Paralysis of the Insane Age Division 25 to 64 Years. By Color and Sex 1912 to 1925**
**Metropolitan Life Insurance Company. Industrial Department**

| Year | Total Ind'l Department | White | | Colored | |
|---|---|---|---|---|---|
| | | Males | Females | Males | Females |
| 1925..... | 26.4 | 33.3 | 10.3 | 92.6 | 41.2 |
| 1924..... | 27.0 | 36.5 | 10.4 | 85.2 | 44.3 |
| 1923..... | 28.4 | 38.7 | 12.4 | 82.0 | 43.3 |
| 1922..... | 26.9 | 34.1 | 10.7 | 88.6 | 48.5 |
| 1921..... | 25.8 | 34.2 | 11.9 | 79.7 | 34.3 |
| 1920..... | 26.0 | 35.3 | 11.6 | 80.3 | 32.9 |
| 1919..... | 25.4 | 34.5 | 12.0 | 65.5 | 37.5 |
| 1918..... | 29.7 | 42.4 | 12.6 | 79.4 | 40.4 |
| 1917..... | 34.3 | 49.0 | 15.6 | 95.4 | 38.7 |
| 1916..... | 31.8 | 43.6 | 13.6 | 90.9 | 45.6 |
| 1915..... | 31.5 | 43.3 | 14.5 | 91.8 | 38.0 |
| 1914..... | 28.9 | 40.1 | 12.9 | 79.2 | 38.4 |
| 1913..... | 27.5 | 40.3 | 12.5 | 62.4 | 36.5 |
| 1912..... | 27.2 | 38.7 | 13.1 | 58.5 | 37.4 |

## ALCOHOL CONSUMPTION AND TUBERCULOSIS

Writing in the *Revue de la Tuberculose*, E. ARNOULD came to the conclusion that there was no observable connection between the alcohol consumption and the deathrate from tuberculosis, in France. Because of the great importance of this conclusion, especially at this time, and also because of its wide divergence from the prevailing opinion on this subject, the Statistical Bureau of the Metropolitan Life Insurance Company reexamined ARNOULD'S data and subjected them to a more refined technique. The result was the very opposite conclusion, namely, a definite connection between the consumption of alcohol, in distilled liquors, and mortality from tuberculous disease.

The method followed by ARNOULD was to classify the *départements* of France first according to the *per capita* consumption of alcohol in distilled liquors into four groups, and then to classify the *départements* according to their deathrate from tuberculosis. Inspection of the results of this double classification seemed to show that the *départements* classed as I, II, III and IV by the tuberculosis classification are distributed quite at random over classes I, II, III and IV by the alcohol consumption classification. ARNOULD concluded, on that account, that there is no observable relation between alcohol consumption, *per capita*, and the tuberculosis deathrate.

Unfortunately, however, this simple technique is not adequate to determine the relationship of the kind here looked for. This problem requires a more delicate test in order to reveal a not very clearly marked parallelism. The very existence of two series of figures showing, in parallel, deathrates from tuberculosis over the range 1906-1913, and the alcohol consumption *per capita*, for each of the *départements*, at once suggests the more delicate and more certain method of *correlation* as properly applicable to the investigation of this case. A computation carried out according to this method by the Metropolitan Life Insurance Company, on the basis of ARNOULD'S figures, leads to the following result: In rural areas, there was found a positive correlation of $.446 \pm .077$ between the tuberculosis deathrate and the alcohol consumption per capita; in urban areas the correlation was $.273 \pm .088$. It seems difficult to avoid the conclusion, therefore, that in French *rural* areas, at any rate, there was a definite relation between these two factors, and that the deathrate from tuberculosis tended to be higher where the alcohol consumption *per capita* was greater. This is the conclusion

to which we are forced by the fact that the coefficient of correlation is in this case almost six times its probable error. In the urban districts the coefficient of correlation is comparatively small, and is only about three times its probable error. According to common practice a figure thus affected with a probable error of this magnitude would be considered barely significant. But the rural figure seems to be beyond reasonable doubt.

## THE HEALTH RECORD FOR NOVEMBER, 1926

The deathrate of the Industrial populations of the United States and Canada, in November, increased considerably, as compared with the preceding month, and exceeded slightly that for November, 1925. The rise, as compared with October, simply reflected the usual, seasonal, increased prevalence of disease at this time of the year. The slight excess, as compared with November of last year, is traceable, for the most part, to higher mortality from tuberculosis, cancer, and the "degenerative" diseases. The November rate (8.4 per 1,000), while a little above the average for the last few years, is by no means alarming. Whatever unusual prevalence there was in Novmber of any of the epidemic diseases has not been reflected in any considerable increase of the deathrate. This applies, in particular, to influenza and pneumonia. The influenza rate showed a slight, and the pneumonia rate a decided, improvement over November a year ago. The situation with respect to the epidemic diseases of childhood is satisfactory with the exception of whooping cough. The measles outbreak of 1926 has evidently run its course and the current rate is about normal for this time of the year. The mortality from diphtheria, in November, showed a small decline as compared with the same month last year.

Diabetes has recorded a higher deathrate in seven of the eleven elapsed months of 1926 than in the corresponding months of last year. This disease is evidently destined to register a higher rate for 1926 than for either 1925 or 1924, although it will not reach the figures recorded in 1923 or 1922. The current rate for diabetes does not differ much from that prevailing ten years ago, and is considerably higher than the mortality of 15 years ago. We are forced to conclude that the extensive use of insulin in recent years has not effected any appreciable change in the deathrate from diabetes.

The suicide rate continues to be above-average, while that for homicide is still running lower than last year. The November

deathrate for automobile fatalities (19.5 per 100,000) was identical with that for October, but appreciably higher than for November, 1925 (17.4).

The general deathrate for the large cities of the United States, in November, was 12.2 per 1,000 estimated population as compared with 11.5 for October and 12.4 for November, 1925. As compared with October, 1926, there was increased sickness from diphtheria, influenza, measles, scarlet fever, smallpox and whooping cough, with fewer cases of malaria, poliomyelitis, and typhoid fever. Comparison with November, 1925, shows more cases of influenza, malaria, measles, scarlet fever, smallpox and whooping cough, but less diphtheria, poliomyelitis, and typhoid fever.

Diphtheria was somewhat more prevalent in most states than in the preceding month, notably in Pennsylvania and California. In Coffeyville, Kansas, 2,000 children were immunized with antitoxin between November 1st and 15th on account of an outbreak of 25 cases. In Columbus, Ohio, a warning was issued against a possible epidemic.

Influenza increased considerably in November as compared with October. The states which showed the most pronounced rises in the number of cases were Arkansas, South Carolina and Oklahoma.

Considerable increases in cases of measles were reported in November from Illinois, Pennsylvania and Kansas. Following an outbreak of measles in Albany, the health officer and the school medical director made plans to counteract, in so far as possible, the spreading of the disease from children of pre-school age to older children who might carry the disease to the schools. Scarlet fever was also more prevalent than in October, more especially in Massachusetts, Pennsylvania and Wisconsin. In Madison, New Jersey, the schools were closed as the result of a slight epidemic among school children. The public and parochial schools were closed for eight school days.

Smallpox prevalence increased rather generally, but especially in Indiana, North Carolina and Michigan. A number of outbreaks were reported from Canadian communities in the Provinces of Manitoba and Ontario. The City of Watertown, New York, reported sixty cases of smallpox during the two weeks ended November 12th.

The usual seasonal decline in the prevalence of typhoid fever was observed in November, as compared with October. Typhus fever cases were reported from Alabama, Florida and Georgia.

Among the more important health activities of the month the following may be mentioned. In Louisville, Kentucky, the Portland Health Center was opened on November 3d. It is fostered by the Community Chest and the City Board of Health, and financed, largely, by the Portland Civic Club. At the opening, about fifty children received their first immunization treatment against diphtheria. A new city health center has been established at Paterson, New Jersey. The New York State Health Department announced that the prevalence of sickness in the rural part of the state is to be the subject of a survey by the Division of Vital Statistics. The ventilation survey in Syracuse, financed by the Milbank Memorial Fund of New York, was started November 29th, and will continue until April, 1927.

The following table shows the mortality among the Industrial policyholders for November, 1926; October, 1926; November, 1925; and the year 1925.

## METROPOLITAN LIFE INSURANCE COMPANY

### Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF NOVEMBER, 1926; OCTOBER, 1926, AND OF NOVEMBER, 1925

| CAUSES OF DEATH | RATE PER 100,000 LIVES EXPOSED* | | | |
|---|---|---|---|---|
| | Nov. 1926 | Oct. 1926 | Nov. 1925 | Year 1925 |
| TOTAL—ALL CAUSES | 837.5 | 785.8 | 819.1 | 907.5 |
| Typhoid fever | 6.1 | 6.2 | 5.7 | 4.6 |
| Measles | 1.2 | 1.3 | 1.8 | 3.3 |
| Scarlet fever | 3.2 | 2.0 | 2.0 | 3.5 |
| Whooping cough | 6.0 | 6.1 | 3.9 | 7.7 |
| Diphtheria | 12.7 | 10.5 | 14.1 | 10.6 |
| Influenza | 13.3 | 6.9 | 14.1 | 22.0 |
| Tuberculosis (All forms) | 84.6 | 78.1 | 80.1 | 98.1 |
| Tuberculosis of resp'y system | 75.2 | 68.9 | 71.4 | 85.9 |
| Cancer | 71.2 | 69.7 | 67.6 | 70.5 |
| Diabetes mellitus | 15.8 | 13.9 | 12.0 | 15.2 |
| Cerebral hemorrhage | 49.8 | 46.4 | 48.1 | 53.6 |
| Organic diseases of heart | 123.6 | 106.7 | 121.9 | 126.6 |
| Pneumonia (All forms) | 70.6 | 48.7 | 78.7 | 86.5 |
| Other respiratory diseases | 11.6 | 11.0 | 11.9 | 13.2 |
| Diarrhea and enteritis | 27.3 | 49.3 | 30.2 | 36.7 |
| Bright's disease (Chronic nephritis) | 69.4 | 62.0 | 63.5 | 69.8 |
| Puerperal state | 11.0 | 11.8 | 15.4 | 16.5 |
| Suicides | 7.9 | 7.9 | 6.7 | 6.9 |
| Homicides | 7.2 | 6.3 | 7.3 | 7.2 |
| Other external causes (excluding suicides and homicides) | 61.7 | 58.0 | 58.8 | 64.3 |
| Traumatism by automobiles | 19.5 | 19.5 | 17.4 | 16.6 |
| All other causes | 183.4 | 183.0 | 175.3 | 190.7 |

*All figures include infants insured under one year of age.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
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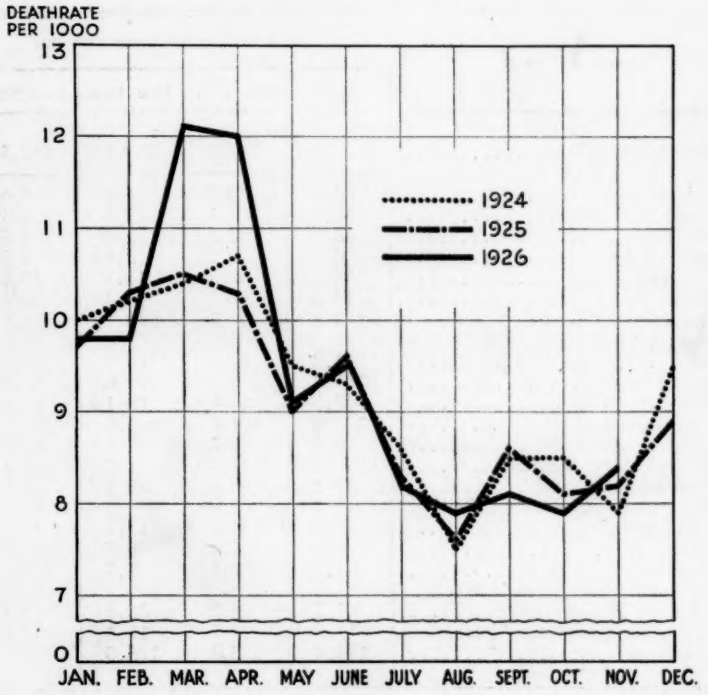
# DEATHRATE PER 1000
## IN SPECIFIED MONTHS OF
# 1924, 1925, 1926

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)




| | 1924 | 1925 | 1926 | | 1924 | 1925 | 1926 |
|---|---|---|---|---|---|---|---|
| JAN. | 10.0 | 9.7 | 9.8 | JULY | 8.6 | 8.3 | 8.2 |
| FEB. | 10.2 | 10.3 | 9.8 | AUG. | 7.5 | 7.6 | 7.9 |
| MAR. | 10.4 | 10.5 | 12.1 | SEPT. | 8.5 | 8.6 | 8.1 |
| APR. | 10.7 | 10.3 | 12.0 | OCT. | 8.5 | 8.1 | 7.9 |
| MAY | 9.5 | 9.0 | 9.1 | NOV. | 7.9 | 8.2 | 8.4 |
| JUNE | 9.3 | 9.6 | 9.5 | DEC. | 9.5 | 8.9 | |

NOTE: Figures include mortality of infants under one year of age.

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